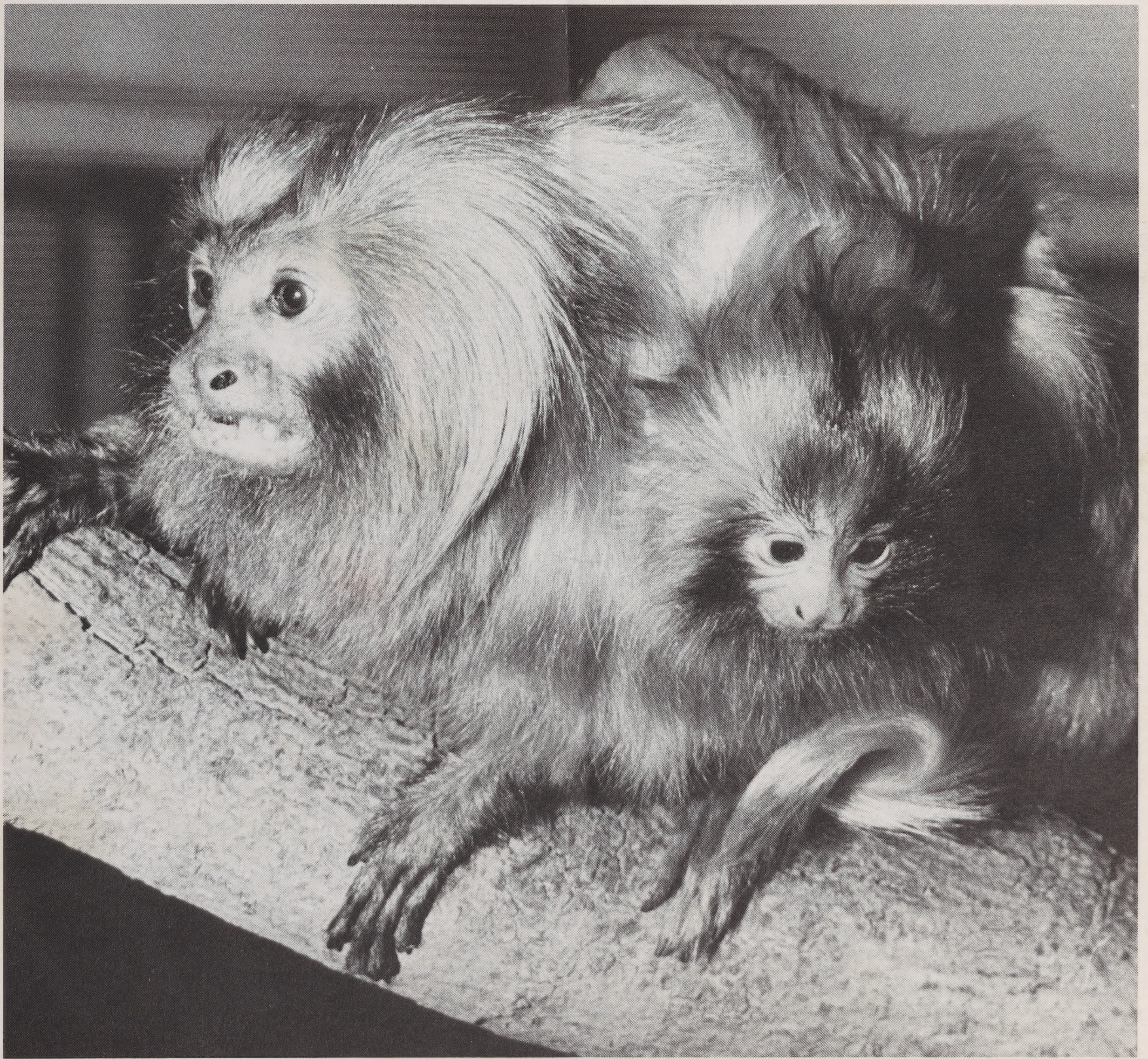


ZOOGOER



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Susan Bury Stauffer
Editor

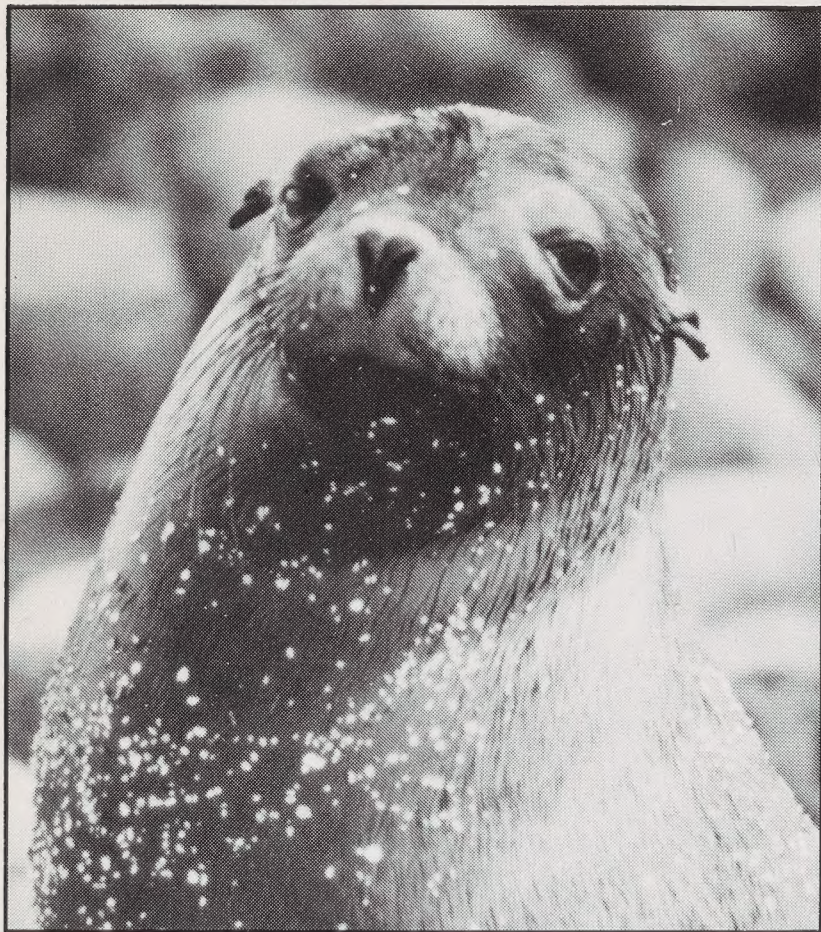
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Front Cover

Tamarins, only about a foot tall, will attack a keeper if they think their young are being threatened. For more on this and other fascinating insights into animal families, see page 11.

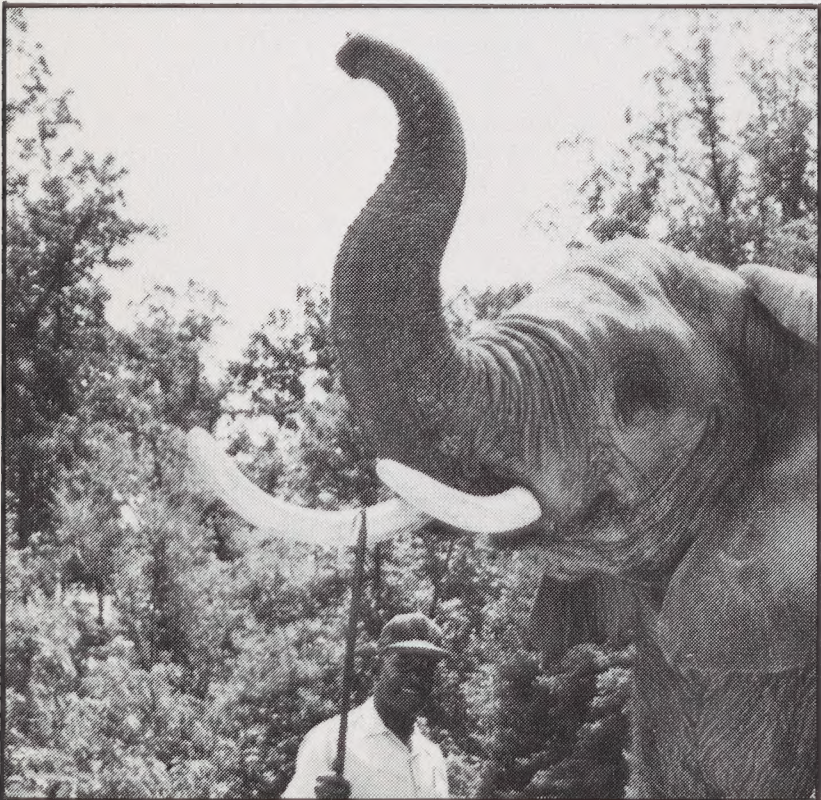
Photo by Jessie Cohen, NZP Office of Graphics and Exhibits.



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Galapagos Adventure

Sally Tongren

After only a week in the Galapagos on a FONZ safari, I have no intention of trying to write anything definitive about those incredible islands. Such an attempt would be the height of presumption. Still, the islands are so extraordinary that the urge to share the experience is irresistible. So I offer some impressions that may be of interest to anyone considering the trip or might possibly evoke a memory from those who have had the good fortune to visit the Galapagos.

Early Spanish sailors knew the islands as *Las Encantadas*—the Enchanted Isles. Lying in the Pacific Ocean 600 miles off the mainland of Ecuador, the islands were hard to locate by the navigation methods of the time. They seemed to appear and disappear as if under a spell. Now firmly located on the map, they are still

enchanted isles, although the enchantment is different.

Go to the Galapagos only if you really enjoy wildlife. Although you travel from island to island on a comfortable ship, this is not like a Caribbean cruise. Your daily trips ashore are to see animals, and often you splash ashore from the small boats. The only port is at Academy Bay where you visit the Darwin Research Station. The "town" of Academy Bay has a few small hotels and only one real tourist facility—Rocky Bar. This small oasis of ice-cold beer and lobster cocktail is so unexpected that you feel it is possibly a mirage. So it is with the birds and beasts that the enchantment of Galapagos lies.

On these remote, unspoiled islands the bird books come to life before your eyes. A Galapagos hawk, dark and handsome, sits in

a tree just a few feet from you. A lovely little Galapagos dove patters down the trail, slow to take wing although well able to fly. A black lava gull hides its downy chick in a rock crevice while a swallow-tailed gull rides the updraft near a cliff and lazily scratches its head with one red foot.

A flightless cormorant appears on a rocky ledge carrying a large beakful of seaweed. He hops from rock to rock, past the visitor's feet until he reaches the nest and presents the weed to his mate. Then, as if to prove he really is a cormorant, he spreads his rudimentary wings in the wing-drying pose typical of all cormorants.

Several species of Darwin's finches appear in the trees, but they are somewhat disappointing. They are black or brown-striped little birds, something of a specialty to

To attract mates, male frigate birds puff up their neck pouches and flap their wings.

If it works, a female joins the male.

And if all goes well, another frigate bird joins the Galapagos population. (Photos by Sabin Robbins.)



identify—and more interesting historically than personally.

Sea birds nest on the islands in great numbers. Although there are many bird islands around the world, there are very few where you can walk among the birds and be ignored. Unless you rush up to them, Galapagos birds act as if you are invisible and go about their business. Blue-footed boobies walk straight out of the textbook, strutting in the courtship display that features their brilliant blue feet—reminiscent of swim fins. They strut, they clatter their beaks together, they “skypoint” by cocking their tails, arching their backs, and pointing their beaks skyward. Some are nesting, often in the

middle of the trail, in nests that consist of a simple circle of guano.

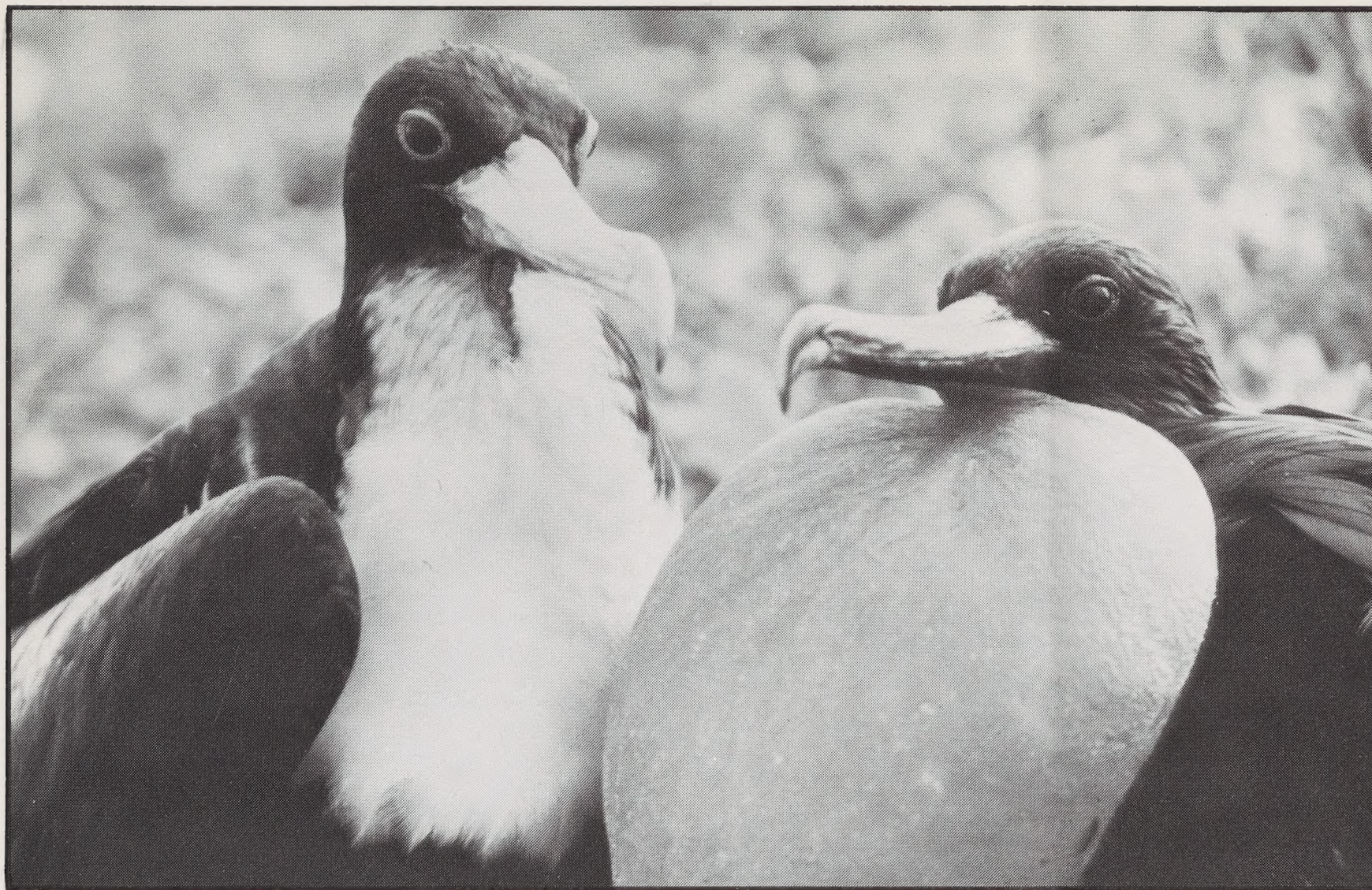
On other islands are the masked boobies, white and gannet-like, and the red-footed boobies that nest in trees and often sit in a row on the fore-stay of the ship. Soft brown with beaks that shade from fuchsia through lavender into blue, red-footed boobies are the prettiest of the three species. But the blue-foot has the personality. I have finally discovered my favorite bird! As each species has a distinct method of fishing, they make a nice study in ecological separation.

Male frigate birds court by inflating their great scarlet neck pouches until they seem ready to

burst. Whenever a female passes over, the males scream and flutter their wings to catch her attention. Often the female is in pursuit of a luckless booby, whom she may seize by the feathers to make him disgorge his fish.

Add to these sights penguins, dapper in sleek plumage, shearwaters, lovely long-tailed tropic birds, terns attending the diving pelicans, and flamingos, and the bird watcher's head begins to swim.

But birds are not the whole of the Galapagos. There are sea lions and fur seals—and occasionally dolphins. There are sea lions sunning, sea lions diving, sea lions appearing beside the boat with a sudden and startling splash. There are mothers



with pups so close that you can hear the pups slurp as they nurse. Some week-old pups follow the visitor like big-eyed brown puppy dogs. Territorial bulls patrol offshore and make some beaches risky for swimming, but the rest exhibit a Garden of Eden tameness. Only the fur seals, perhaps with some inherited memory of former persecutors, are a little shy. Besides, they prefer shade in the heat of the day and keep their pointed noses in the shadow of the ledges.

I will always remember a frieze of sea lions flapping their way up a glaring white sand dune toward a brilliant blue sky, as sharp and clean as a hard-edge painting. And I will remember the sea lion who

fished for an hour under the lights of the ship, chasing the flying fish in a flurry of phosphorescence. And there was the young male who decided a pair of tennis shoes, unguarded for a moment, would make a delightful plaything, and who had to be bluffed out of the idea.

Then there are reptiles. We saw only a few land iguanas sunning among the cactus, but lava lizards scuttle everywhere, and marine iguanas lie on the rocks in dozens—or hundreds. They regard visitors with the superior expression common to iguanas—and camels—and punctuate this with a sudden jet spray from their nostrils. Although you know this spray is only the

animal clearing the secretion of the salt glands, it seems to express the iguanas' opinion of all human visitors.

The most famous Galapagos inhabitants are the tortoises, but they can only be seen in the wild by taking a five-hour trek up into the volcanic craters where they live in the more humid conditions of the high country. A captive population lives at Darwin Station where their eggs, carefully segregated according to the island races, are incubated and the young tortoises are reared until they are large enough to be safe from the wild pigs and dogs and rats that have been so destructive to these animals. Here too, although we did

not see him, lives "Lonesome George," the last remaining Pinta Island tortoise. A search through the world's zoos has failed to find him a mate of the Pinta Island race, and an attempt to cross him with the female of the race most resembling his resulted in albino—and unviable—young. So "George" is the last of his kind.

The policy of the Galapagos National Park, which controls eighty-five percent of the islands' area, is to interfere with nature as little as possible. The tortoise-rearing program is one exception; it is the only possible way to preserve the tortoises. Another exception is the control of the wild goats, pigs, and rats that destroy both habitat and animals. Except for a handful of scientists, the islands are undisturbed. There are no graded trails and no visitor facilities—except those at the few inhabited islands. The islands are for the animals, and for better or worse, the animals are on their own.

We saw sea lions dying of sea lion pox, a heartbreaking sight, especially in an animal that seems so joyous. But the disease is probably a normal population control. Death is part of the natural order, but in our sanitary world we are rarely aware of it. I shall always remember our guide's words, "This, too, is Galapagos."

Galapagos is an incredible world. It is easy to imagine how Charles



Marine iguanas are common on many Galapagos Islands. These three-foot long reptiles feed on underwater algae. (Photo by David K. Krohne.)

Darwin, his mind already tuned by what he had observed on the coasts of South America, was set afire by these islands where the volcanos were still creating a world, and where the animals were so like—and yet so unlike—their mainland counterparts. It is good to know that this unique system is

being protected. As we sailed out of the harbor at Tower Island, I watched the clouds of boobies and frigates, and I was very thankful that there is one corner of this globe where man is only an occasional and unimportant visitor, where birds and sea lions and iguanas can pursue their destiny in peace.



See It For Yourself!

FONZ members have the opportunity to experience the incredible world of the Galapagos on a wildlife adventure next spring.

On this 14-day expedition, you'll explore all the islands described by author Tongren, visit Ecuador's capital city of Quito and see colorful Indian markets in the countryside. There is even an optional six-day excursion to Peru to see Lima and the breathtaking Inca ruins at Machu Picchu.

You'll cruise the wildlife-filled islands aboard a deluxe, air-conditioned ship, stopping to swim with friendly sea lions and scratch the necks of giant tortoises. Professional naturalists will conduct daily walks and illustrated lectures. All travel details will be handled by a FONZ leader.

The expedition will take place April 23-May 12. For details, contact the Office of the FONZ Executive Director at 673-4950.

With typical tameness, Galapagos inhabitants allow visitors plenty of opportunities for "close encounters." (Photo by Sabin Robbins.)



Do siamang families teach survival skills to the young through play? It seems so – but proof is hard for researchers to obtain. (All photos by Jessie Cohen, NZP Office of Graphics and Exhibits.)

Animal Fathers

Susan Bury Stauffer

When the siamang family swing about in the Monkey House, they give us joyful entertainment. To the more watchful eye, they also say something about a relationship that has yet to be fully explored—that of animal fathers and their young. We have much to learn about how animal fathers interact with their families, but what we do know is tantalizing and sets the stage for future research.

Although the mother's contribution to her young is obvious to us, there are many things a father can do to see that his offspring survive and reproduce. Even with mammals, where the mother carries the young until they are born live and then nurses them, the father can contribute by carrying them from place to place or retrieving them from danger.

The father can bring food or regurgitate food for the young, as

wolves and other canids do. Beaver fathers hoard food for their young. In many species, fathers groom the young and play with them, which helps them adjust to group living. Studies have shown that deer mice parents' huddling with their young can increase the youngsters' body temperatures and, thus, their growth rates. Gorilla and some monkey fathers are among those who huddle with their young.

Even in species where the male lives with a harem of females, such as the zebra, the father protects his multiple families from danger.

You can make the self-evident statement that a father's care is adaptive, that it promotes survival of the young and their eventual reproduction, but that does not say very much about how it works.

Dr. Devra Kleiman, head of the National Zoo's Department of Zoo-

logical Research, says, "Where you find paternal care, it works. Where you don't find it, it's not needed. But that doesn't really tell you much about it. If it's there, it must be adaptive, but that's different from asking *why* it began."

Dr. Kleiman has been studying monogamy in the animal world for five years, and part of this study is the role of the father in raising the young. Her students here and at the Zoo's Conservation and Research Center at Front Royal, Virginia, are observing and recording behavior in Zoo animals to find trends. The basic questions are how, how much, and when do males get involved in rearing their own young?

Zoologists have many theories about monogamy and paternal care among animals. The amount of paternal care is related to how much the female needs the male and when the offspring need care—when eggs

are laid or hatched, when young are born or weaned.

Paternal care appears in all kinds of animals and habitats throughout the world. The species in which fathers participate in rearing the young do not share any basic characteristics; for example, they are not all fruit-eaters or carnivores. Paternal care is part of how animals fit into their environments, and, as Dr. Kleiman points out, we do not know enough about this relationship to determine exactly what prompts fatherly care.

There is a connection between monogamy and a high level of paternal care. About ninety-five percent of birds are monogamous, and the majority of bird fathers help look after the eggs and care for the young when they hatch. There is ample opportunity for the father to be involved since the egg develops outside the mother's body and the offspring do not nurse.

A mammal mother can raise her young by herself, and the male cannot incubate or nurse the young in any case. Evolution has not pressured mammals toward monogamy. Only five percent of mammal species are monogamous, but about ten percent show direct paternal care.

Some frog and fish fathers do everything for the young and have even developed "pouches" to carry



Although female dik-diks are good mothers, the fathers are surprisingly attentive also. Researchers think that might be because males mate with fewer females than do males of other species.

the eggs. Other species produce so many eggs that some young will survive in any case, and no parental care is given. Some researchers think male alligators may be involved in care of the young, but there is little indication that other reptile fathers are.

Although monogamous fathers are more often involved in raising the young, there is involvement by polygynous (one male to several females) animals living in harems. Breeding male zebras and gorillas do defend their harem females and the offspring. Some studies indicate

that this occurs more often when young exist in the harem, although not necessarily when the young are present.

Monogamy and paternal care do run in related groups—for example in wolves, dogs, and foxes. Among marmoset and tamarin monkeys, fathers in all species interact with and care for their young. Most of the big cat males do not participate in raising young, but there are indications that some of the smaller cats in the wild might be monogamous, with the father involved in raising his offspring.

Other family members as well as the fathers get involved in such highly social species as the wolves.

Paternal care is harder to detect in monogamous animals that are asocial and more cryptic than other species in their behavior. For example, elephant shrew infants protect themselves by hiding, and neither mother nor father spends much time with the youngsters. The parents "care" for the young by ignoring them and thereby not attracting enemies. The male elephant shrew also does his part of the housekeeping, spending more time than the female in keeping their regular trails free of debris.

In the wild, crane, swan, and goose fathers are all heavily involved in rearing young. So are bald eagle fathers. Polyandry (one female to several males) is not common in birds, but in some species the female will lay eggs in several different males' nests. Emus and rheas are polyandrous, with the fathers handling most of the care of the young.

To protect the Zoo's bird population, most eggs are taken from the nest for incubation and hand-rearing. However, some of the cranes are now being allowed to rear their young as they would in the wild. Zoo personnel care for five or six eggs, and the nesting pair care for two or three. The Zoo's bald

eagles have also raised some of their own young.

Animal mothers provide nurturing care, but as their infants become more independent, the fathers enter the picture to play with and socialize their offspring. There is less play among mammal mothers and young than there is with fathers. This is not surprising when one considers the energy the female uses in producing milk and nursing.

Dr. Kleiman says that if males do not do anything else with their young, they will interact socially with them, usually through play. Visitors can sometimes observe the gibbons and siamangs in this activity.

It seems obvious that playing with the father provides the youngsters with training for later life, but, says Dr. Kleiman, "That's an assumption." The long-armed siamangs swinging about with their young might be improving the infants' agility. And for predators, fathers interacting with their young at weaning might be teaching something about hunting skills. In the canid species studied, the father does play in ways that would improve his youngsters' skills.

If the kind of playing involved would be functional in later life—for example, play that simulates hunting—zoologists generally assume that the play is providing

training and exercise. But this has never been proven, and it would be hard to prove. Dr. Kleiman points out that the only sure test would be to prevent the young from playing at all and then test their skills against young that had been allowed to play. However, preventing the young from playing would require restraints that would alter their behavior in far more basic ways and, thus, render the test valueless.

Protection is another service some fathers provide their young, even if they do not provide much else. In captive populations, this shows itself in the fathers' becoming more aggressive toward keepers when their own offspring or others' offspring arrive.

Keepers at the National Zoo have learned this the hard way. When infants have to be hand-raised, they are returned to their own families as quickly as possible. Baby tamarins sometimes have to be looked after by Zoo staff; then they can be safely returned to the tamarin group. However, the keepers have found that often when they approach the enclosure, these youngsters squawk for food as they did when they were in full-time human care. The adult tamarins interpret the cry as a distress call, and their response is immediately protective. The young have not yet learned that their response should be to climb on an

adult's back for protection. When they do not do what the adults expect, the adults become more agitated. The keepers, perceived as enemies, are often attacked by the tamarins, usually by the males—and the tamarins are only about a foot tall!

Tamarin babies spend as much time with their fathers as they do with their mothers. The Zoo visitor may see some short and subtle interchanges between father and offspring. This may take some patience and close observation since mother and father look alike. The previous year's litter also stays with the tamarin parents, making family interactions more complicated.

The white-cheeked gibbons make observation a little easier for the Zoo visitor since the males are black and the females are blond. Barbary apes and lemurs also offer the visitor an opportunity to view family interactions.

Red (or lesser) pandas are born from late June to mid-July, but they remain in the nest until October or November. With some patience, the Zoo visitor can see short play bouts between the father and the youngsters as the animals become active in late afternoon.

Studies to determine if a tie between father and young makes

the young more fit to survive and reproduce have proven inconclusive. No doubt several factors contribute to the father's becoming involved. For example, the advantages of cooperative hunting and the ability to regurgitate food both probably prompted paternal care in the wolves and other social canids.

Zoologists have many questions about fatherly care. For instance, how does the father's involvement with the young affect the social group—and vice-versa? A male who mates with a number of females will produce more offspring than a monogamous male. However, males that father fewer young may give proportionately more care to each of those young. This may be the case, for example, with the dik-diks.

In a harem, where all the young are raised together, the father can act as protector and socializer for young from several different females. If the females who have mated with a particular male live on their own, each of them must compete for his fatherly attention.

Does the male have to be certain that he is the father for him to participate in raising young?

Although this may play a part in fatherly care, there are extreme forms of paternal care in bird species where the certainty of paternity is lower than in most monogamous species.

Do fathers have a closer bond with sons, and mothers with daughters? Dr. Kleiman says that tamarins seem to. It appears that juvenile males are more attentive to their fathers, perhaps because fathers carry sons more than they carry daughters.

In many species, juvenile males who begin to "flex their muscles" may also begin to interact more with their fathers because the fathers become more aggressive in order to control them. However, this is different from the early sex preference that infant tamarins of at least two species seem to show. Zoo researchers hope to study this further, although it is subtle and difficult to observe.

If a certain behavior takes place at the Zoo, does that mean it also takes place in the wild? Dr. Kleiman says studies on mice, rats, and gerbils indicate that it might not. In many species, males and females have different home ranges in the wild. Red pandas in captivity breed best when kept as pairs, but they may not be monogamous in the wild. The fathers may have no bond with the young.

Dr. Kleiman says that working with captive animals long enough gives researchers an intuition about which behaviors are the result of captivity: "You get a feel for what is real and what isn't." If the animals

act the same way again and again, and if more than one animal displays the behavior, it is more likely that the behavior is "real." Another indicator is whether the behavior appears to be functional in the wild. Begging is common among captive bears, but it obviously would do them no good in the wild; it is clearly a result of their captivity.

The Zoo's bush dogs provide another example of determining what the animal's "real" behavior is. Dr. Kleiman's students observed something unusual during a bush dog birth: the female screamed loudly throughout the process. "Normally, the birth process is very quiet in mammals, primarily as a good anti-predator response," says Dr. Kleiman. "You don't want to be

giving birth and advertising that you're doing so. That's rather dangerous!" Also, the bush dog's mate was with her through the delivery, helping clean the pups as they emerged—a rare degree of paternal involvement.

The students had to wait through several more births to determine that bush dog mothers generally do give a healthy holler while giving birth and that the mates assist them, sometimes actually pulling the pups out. It is still not certain that they do this in the wild, although each Zoo animal that exhibits this behavior makes it more certain.

Female bush dogs and female tamarins are so tightly bonded to their mates that they will not care for their young if the males are away. The Zoo's bush dog breeding program became very successful when staff members realized this. Although mates of all species do not bond to this degree, some other breeding programs might also benefit when the mother-father-young tie is more clearly understood.

Finally, what makes parents act like parents? Dr. Kleiman points out that human mothers become sensitive to their babies' cries, awakening in the middle of the night at the first sound. In contrast, the father is likely to sleep through.



The Zoo's male maned wolves become more aggressive toward keepers when young are born. The exact reason for this is one of many questions Dr. Kleiman hopes to answer through her research.

"If you're in the middle of sleeping, I don't know that I'd call it 'mother love' if you wake up! But you really get sensitized to those sounds; your sensory systems are changing, and some of that is going to be hormonal. There are hormonal influences working on mothers all the time, even in women who don't breast-feed."

For humans, there is also a great deal of what Dr. Kleiman calls "cultural overlay"—what we have been taught about what women are supposed to do and what men are supposed to do. Separating this influence from the real biological changes that go with birth is difficult.

The study of animals is affected, too, because researchers must avoid applying their own cultural attitudes to the behavior of animals. Non-human animal mothers are also especially responsive to the smells and sounds of their young. However, it is possible to induce maternal care of others' offspring in females who have not given birth, and this clouds the picture as to the effect of hormones.

In studies of paternal care in mammals, it has been assumed that males did not undergo any biological changes at the birth of young. Do they?

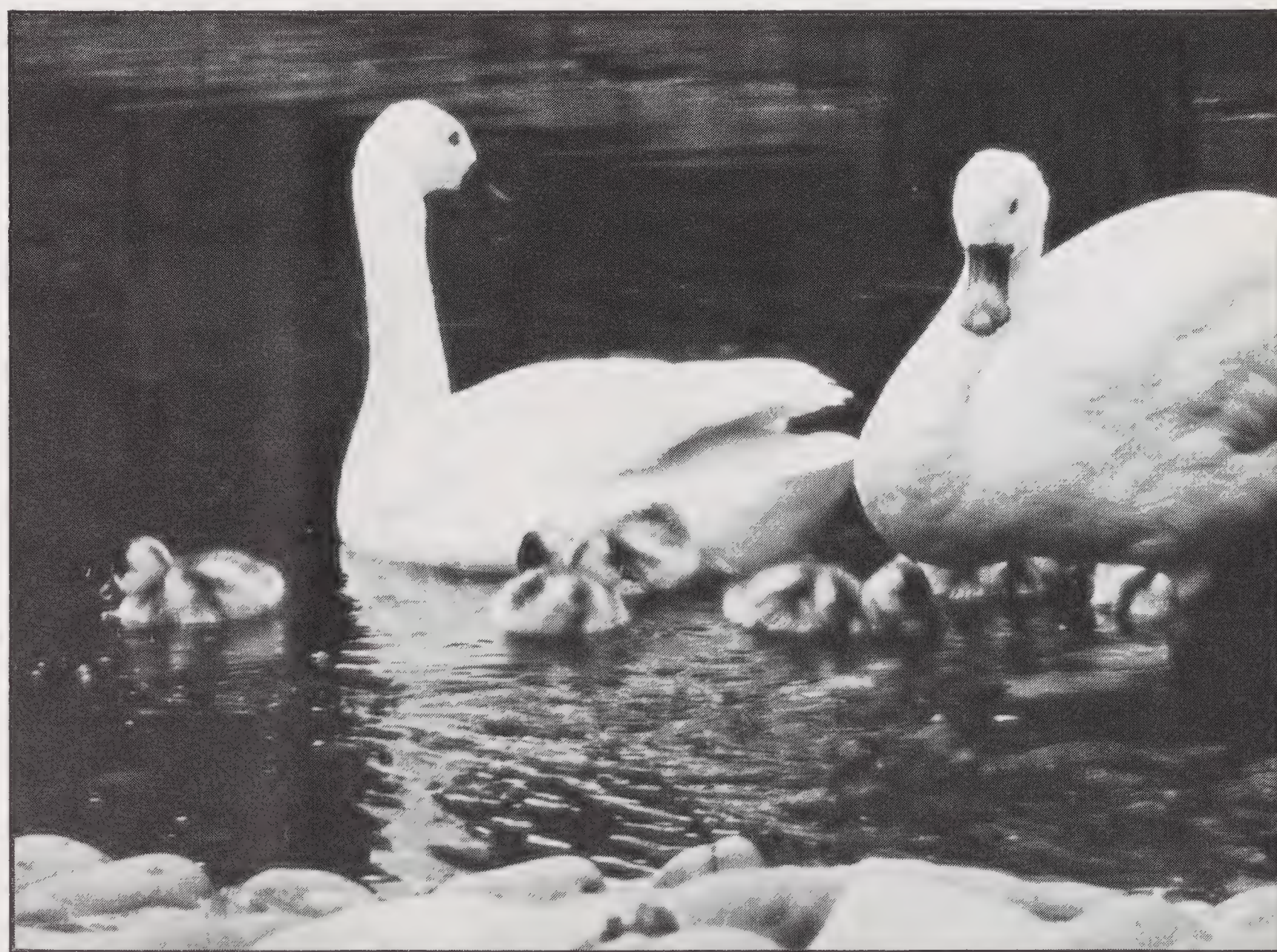
The maned wolves at the Zoo are monogamous, but the males are not

with the family right from birth, and the females can rear their young alone. During births at the Zoo, the fathers have been housed next to the mothers and could hear them but could not see them. As soon as the pups were born, Dr. Kleiman notes, the fathers became significantly more aggressive toward the keepers. She says many Zoo researchers have recorded similar incidents in other animals.

If a female becomes protective when she gives birth, we can

attribute it to hormonal changes and constant exposure to the young. But for wolf fathers, the trigger is sound—and perhaps smell. How does the birth of offspring change them?

Dr. Kleiman and her students continue to observe and watch for trends, looking for new clues to answer basic questions about the most basic relationship—mother, father, and young.



Bird fathers are heavily involved in rearing their young. There is more opportunity for bird fathers to raise young than for mammal fathers because bird eggs are incubated in nests and the young do not nurse.

BOOK NEWS

Galapagos: Islands Lost in Time, by Tui De Roy Moore. New York: Viking Press, 1980. 160 pp., \$30.00.

The Galapagos Islands have been known as "the enchanted isles" for hundreds of years. No wonder, as this book shows. In recent years, efforts have been made to preserve the natural state of the islands and to protect their unique wildlife. Only a few thousand people are permitted to visit these incredible islands each year.

Even those fortunate visitors spend just a few hours on several of the islands. Tui De Roy Moore, on the other hand, grew up in the Galapagos. She started taking pictures when she was twelve, and fourteen years—and 12,000 transparencies—later she has published one of the most exquisite books imaginable.

Often it took up to six months for her processed film to be returned from the United States, but she continued taking pictures and gaining a special feeling for her subjects because she knew them so well. Her book provides eloquent testimony to her skills as photographer and writer.

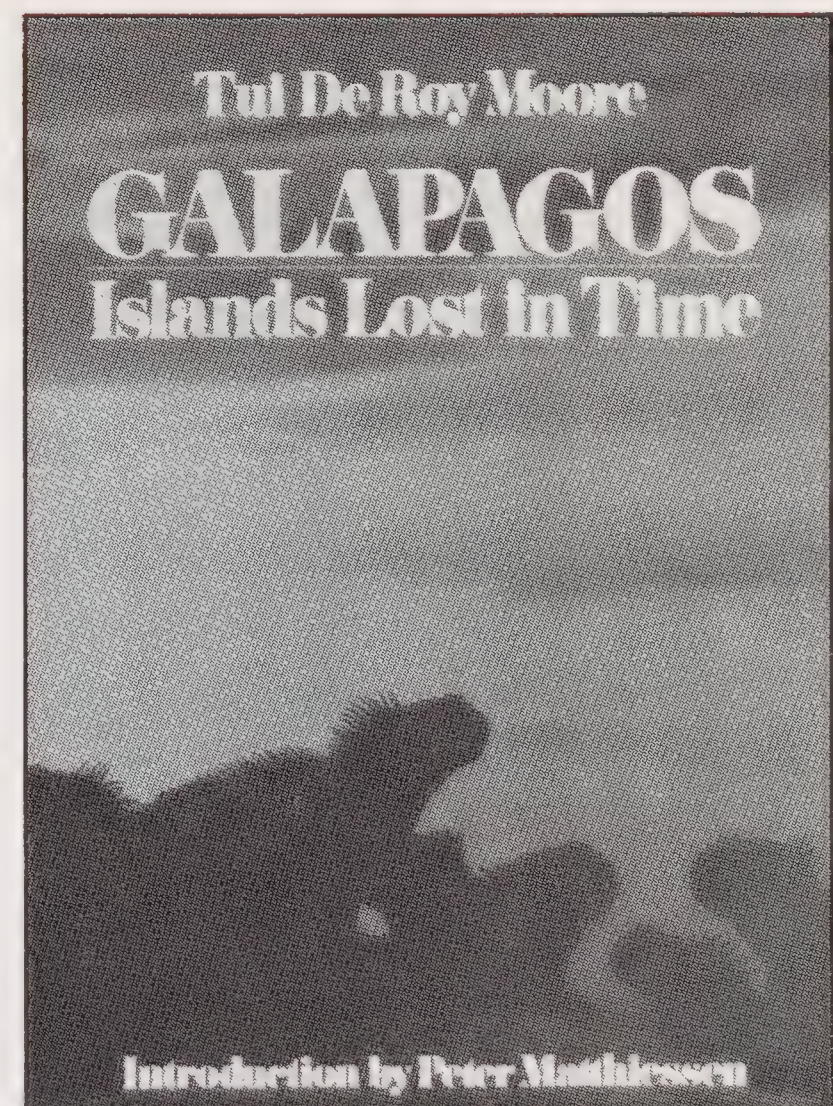
With such "coffee table books," there is always a temptation to skip the text and concentrate on the illustrations. But Mrs. Moore's chronicle of 24 years in the Galapagos is fascinating, as is her brief history of the evolution of the islands.

Ultimately, however, this is a book one buys for the photographs. Mrs. Moore has included almost 300 color photographs of the islands and their plant and animal life.

There are sights familiar to the Galapagos visitor—sea lions and fur seals, land and marine iguanas, Sally Lightfoot crabs, mockingbirds, doves, hawks, penguins, flightless cormorants, frigate birds, gulls, pelicans, flamingos, herons, albatrosses, and, of course, the irresistible red- and blue-footed boobies. There are also many sights visitors miss, including erupting volcanoes and mating tortoises. Island.

This is a splendid souvenir for anyone fortunate enough to have visited the Galapagos, and it is sure to whet the appetite of anyone considering a Galapagos safari. It is not inexpensive, but it is well worth the price.

David K. Krohne



ZOO NEWS

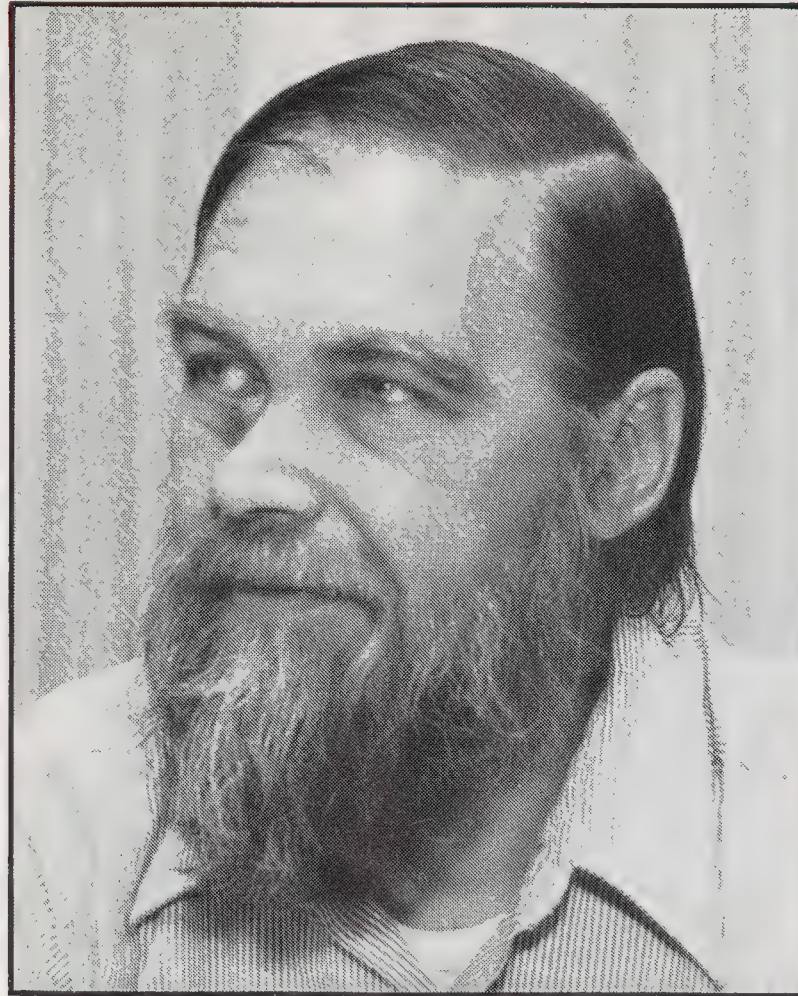
Eisenberg Leaves NZP

The National Zoo is losing a valued staff member as Dr. John Eisenberg, assistant director for animal programs, leaves to become a professor of ecology at the University of Florida.

Dr. Eisenberg joined the Zoo 17 years ago to launch an animal research program and to conduct field studies that would benefit the Zoo collection. In addition to his latest position, he has served as resident scientist, acting assistant curator, general curator and head of the zoological research department.

A Ph.D. graduate of the University of California, Dr. Eisenberg has published more than 170 articles on zoology. He has held numerous teaching posts and has conducted field studies in the United States, Mexico, Panama, Venezuela, Madagascar, Sri Lanka and China.

Before his 1968-1970 study in Sri Lanka (then called Ceylon), Dr. Eisenberg gave a lecture to FONZ members at the Elephant House. At the close of his talk, he literally passed a hat and collected enough funds to buy books and equipment not provided for in his other research grants.



Dr. Eisenberg believes FONZ has given NZP a great deal of flexibility in public education. "It was a master stroke to give the Zoo food and parking concessions to FONZ so FONZ would have the money to provide better education programs," he says.

Through the FONZ intern program, which provides \$180,000 in grants each year, Dr. Eisenberg has been able to meet one of his goals: making the Zoo available to graduate students.

Two of his early students, Christen Wemmer and Larry Collins, are now curator-in-charge and

collection manager, respectively, at NZP's Conservation and Research Center in Front Royal, Virginia.

Looking back over his 17 years at the Zoo, Dr. Eisenberg notes such important developments as the second generation birth of orangutans, the golden lion tamarin breeding program, the acquisition of the giant pandas, the completion of the Zoo hospital-research complex and the outstanding visual impacts of Lion-Tiger Hill and Beaver Valley.

He considers the development of the Front Royal facility "an extraordinary achievement. It allowed us to broaden our breeding program, and it's large enough to permit flexibility. We can have herds of the correct size and the right age and sex composition. It's made us a world-class zoo."

Dr. Eisenberg has also been concerned with professionalizing the keeper staff. "In the late 60s," he notes, "young people started to get into zookeeping, not for pay or prestige but because they wanted to do it. They are bright, dedicated people, and they've definitely raised the quality of animal care."

Although Dr. Eisenberg can look back on many accomplishments at NZP, he has regrets about this move. "I'll be leaving some super

animals...and people. The Zoo is an amazing collection of personalities on either side of the glass."

Dr. Eisenberg's new post will be Ordway Professor of Ecosystem Conservation. Part of his duties in Gainesville will be the management of an 8000-acre wildlife preserve where crane, ibis, fox, deer and other animals will be protected and studied by his students.

Training Demonstrations Continue

Zoo visitors can now view elephant training every day at 2 p.m. FONZ training interpreters are on hand at each session to explain training methods.

Training the elephants makes it possible to give them proper care, such as scrub-downs and foot grooming, with minimum stress to the animals and maximum safety for the keepers. Elephants are social animals, and the NZP training program is designed to make the keeper the "dominant animal" in the social group. The demonstrations show how keepers maintain this dominance using the ankus, a curved and pointed tool which is used the way the mother elephant uses her tusk to direct her young.

Depending on weather, the demonstrations may be indoors or out—when you approach the Elephant House, look for the animals and the FONZ training interpreter.



Nancy, the Zoo's African elephant, shows what she has learned to Jim Jones, keeper leader, holding the ankus. The keeper staff includes (from left) Janis Easter, Kathy Wallace, Ralph Strauss, Corley Harper, Elizabeth Frank (collection manager) and Jim Lillie. (Photo by Jessie Cohen, NZP Office of Graphics and Exhibits.)

Gift Animals

Four gharials (Asian crocodiles), received as a gift from the king of Nepal, are on exhibit behind the Reptile House. The NZP gharials are three years old, too young to breed yet. NZP hopes future breeding efforts will be successful, especially since only about 150 gharials survive in the wild. The Zoo gharials are about three feet

long but can grow to more than 20 feet. These animals are also called gavials.

The Zoo expects to have on exhibit by December two bald eagles that were officially presented to President Ronald Reagan by West German Chancellor Helmut Schmidt. The eagles, Carol and Captain, were hatched on a reserve last May.

The Zoo's white tigress Bharat gave birth to two cubs, Varuna and Sudha, April 15. The cubs are part of a cooperative program among several zoos to save the pure Bengal line and the white line by breeding the most fit animals. The father is an orange tiger obtained from the Knoxville Zoo. (The January-February 1982 Zoogoer reported in detail on this program. Kanchana, the cub featured in that story, has been sent to the Knoxville Zoo to join a white male cub there.) Bharat and her cubs are outdoors in the mornings at Lion-Tiger Hill. (Photos by Jessie Cohen, NZP Office of Graphics and Exhibits.)





FONZ NEWS

Zoo Guidebook Published

For the first time in 20 years, the National Zoo has an official, all-color guidebook. The 80-page, photo-illustrated book was produced by FONZ, and it sells for a bargain \$2.40 at all Zoo shops and Information kiosks (\$2.26 plus 14¢ tax).

More than a guide to the 2800 animals exhibited at the 167-acre National Zoo, the book includes special reports on many "behind-the-scenes" aspects of Zoo life. There are chapters on the various specialists who make up the Zoo staff, animal feeding and health for the 400 different species represented, the origins of animal names and Zoo babies. Guidebook readers will learn how hidden barriers keep the lions and tigers from escaping, why the elephants need manicures and which large animals are born no bigger than a bean.

There is even advice on the best way to see the Zoo (including tips on where to take small children) and how to understand animal behavior.

The Zoo's most famous residents, the giant pandas, are given front

cover attention, and a special section details their history and habits.

The Guidebook was written by FONZ volunteer and board member, Sally S. Tongren, who recently authored another popular book, *What's for Lunch*, on the feeding of Zoo animals. FONZ's former publications director, David K. Krohne, served as editor and designer, assisted by Rebecca K. McClimans. The book features more than 130 color photos, most taken by NZP photographer Jessie Cohen.

With its two-page, fold-out Zoo map and comprehensive information on hours, feeding times, facilities, special activities and the color-coded trail system, the Guidebook is a must for all zoogoers. In addition, it is a handy and permanent reference for the diverse wildlife on view at the Zoo.

As Zoo Director Dr. Theodore H. Reed says in his introduction to the Guidebook, "I hope you will find this guide interesting, informative, and useful. In addition to making your visit more pleasurable and meaningful, the guide will serve as a reminder of your visit."

Honorable Mention for Zoogoer

The *Zoogoer* has won an honorable mention award in the 1982 Museum Publications Competition held by the American Association of Museums. The competition honors excellence in graphic design and production.

Of 600 entries from nearly 200 museums, 38 were chosen to receive honorable mention. The winning *Zoogoer* was a special issue, "Great Ape House Guide," now on sale at the FONZ shops.

Annual Meeting

A report on FONZ activities and achievements during the past year and the installation of newly-elected officers and directors will highlight this year's Annual Meeting at 8 p.m., Thursday, October 21, in the Zoo's Education Building Auditorium. President Robert L. Nelson will brief members on FONZ plans for the future, and Treasurer William C. Bryant will report on financial progress.

Also, a report will be given on the involvement of 100 FONZ volun-

teers in the around-the-clock behavior and "preg" watch of the giant panda, Ling-Ling.

Light refreshments will be served, and the Bookstore-Gallery will be open especially for the meeting.

Antarctic Expedition Still On

When you received your FONZ Wildlife Safari report and looked at the Antarctic expedition, the first thing you probably noticed was "Falkland Islands."

Please note that the trip is still on! The expedition offers you the opportunity to cruise the waters of the southern Atlantic to the Falklands, viewing whales, fur seals and albatrosses among glaciers and towering icebergs.

The trip takes place December 6-30. For complete information, contact the Office of the FONZ Executive Director, 673-4950.


Kits Available

Two popular kits for young zoogoers, "Along the Zoo Trail" and "Zoo Explorers Pack," have been revised and are now for sale. These kits have been praised by teachers and parents alike.



The "Zoo Explorer's Pack" has seven games designed for children to play while they are at the Zoo. The price is \$1.95.

"Along the Zoo Trail" comes in two versions, one for birds and the other for mammals. Each kit includes an information booklet, instructions for games to play and a separate game board. The price for each version is \$6.

These kits can be purchased at the Bookstore-Gallery in the Zoo's Education Building or mail ordered (make your check payable to FONZ) from Judith King, National Zoo, Washington, DC 20008 (673-4735).




Along the Zoo Trail



Games, Photographs and a Book for Young Children about the Birds in the National Zoo

Developed under the direction of Catherine Peterson with funds provided by the Smithsonian Institution's Educational Outreach Effort

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PUBLISHED by the FRIENDS of the NATIONAL ZOO





This male guanaco was born at the Zoo July 4, and another was born July 16. The guanaco families are on exhibit in the deer area on the Crowned Crane Trail.

**Friends of the National Zoo
National Zoological Park
Washington, D.C. 20008**

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